

Appointment

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**From:** Adams, Glenn [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c79e328cd4484265b012dfa81663f5e7-Adams, Glenn]  
**Sent:** 9/20/2021 9:51:40 PM  
**To:** Adams, Glenn [Adams.Glenn@epa.gov]  
**Subject:** RE: Oak Ridge Comparison Table  
  
**Start:** 9/21/2021 8:30:00 PM  
**End:** 9/21/2021 9:00:00 PM  
**Show Time As:** Busy

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**From:** Alexander, Shanna  
**Sent:** Monday, September 20, 2021 5:48 PM  
**To:** Adams, Glenn  
**Cc:** Amoroso, Cathy; Richards, Jon M.; Frederick, Tim  
**Subject:** RE: Oak Ridge Comparison Table  
**Attachments:** Oak Ridge Fish Comparison Criteria Table 20SEP2021r.xlsx

Attached is the revised spreadsheet using just 15 fish meals (not 14.73 or 15.08).

**From:** Adams, Glenn <Adams.Glenn@epa.gov>  
**Sent:** Monday, September 20, 2021 5:23 PM  
**To:** Alexander, Shanna <Alexander.Shanna@epa.gov>  
**Cc:** Amoroso, Cathy <Amoroso.Cathy@epa.gov>; Richards, Jon M. <Richards.Jon@epa.gov>; Frederick, Tim <Frederick.Tim@epa.gov>  
**Subject:** RE: Oak Ridge Comparison Table

Sorry, I meant to also ask if you have this in Excel?

**From:** Adams, Glenn  
**Sent:** Monday, September 20, 2021 5:21 PM  
**To:** Alexander, Shanna <Alexander.Shanna@epa.gov>  
**Cc:** Amoroso, Cathy <Amoroso.Cathy@epa.gov>; Richards, Jon M. <Richards.Jon@epa.gov>; Frederick, Tim <Frederick.Tim@epa.gov>  
**Subject:** RE: Oak Ridge Comparison Table

Thanks Shanna, this is what I needed to answer the RA's question. I do have one other question though. For meals/year wouldn't both values just round to 15 (two significant digits)? We do not

usually use four significant digits.

Glenn

**From:** Alexander, Shanna <Alexander.Shanna@epa.gov>

**Sent:** Monday, September 20, 2021 5:11 PM

**To:** Adams, Glenn <Adams.Glenn@epa.gov>

**Cc:** Amoroso, Cathy <Amoroso.Cathy@epa.gov>; Richards, Jon M. <Richards.Jon@epa.gov>

**Subject:** Oak Ridge Comparison Table

Glenn,

Below is a summary table comparing the CERCLA site-specific instream water column PRGs (which are equivalent to AWQCs), the Clean Water Act Ambient Water Quality Criteria (using default assumptions), and the end of pipe radionuclide discharge limits based on DOE's proposed range of assimilative capacities (i.e., 3 and 16). Also included for comparison are the current radionuclide discharge measurements for Bear Creek and DOE's 25% DCS values. Note that the site specific values have increased slightly due to the slight change in the fish catch rate from 43% to 42%. This results in an average fish meal estimate of 14.73 instead of the previously calculated 15.08 meals/year.

**Radionuclide\***

**Units**

**EPA CERCLA Methodology – Site Specific**

**EPA CWA Methodology - Defaults**

**Example End of Pipe Effluent Rad Discharge Limit (assuming assimilative capacity of 3)\*\***

**Example End of Pipe Effluent Rad Discharge Limit (assuming assimilative capacity of 16)\*\***

**Current Average Discharge Measurements at the EMWMF (current landfill)**

**DOE Proposal**

**Site-Specific Instream Ambient Water Quality Criteria (AWQC) Equivalent (assuming 15 fish meals/year)**

**CWA Guidance Defaults Instream AWQC (34 fish meals/year)**

**25% DCS Value**

Cs-137

pCi/L

1.22

0.19

3.66

19.52

5.05

750

Sr-90

pCi/L

392

89

1,176

6,272

3.41

275

Tc-99

pCi/L

1,917

297

5,751

30,672

171

11,000

U-238

pCi/L

990

214

2,970

15,840

1.66

188

\*Most mobile and commonly detected radionuclides at Oak Ridge Reservation.

\*\*These are example calculations only since actual radionuclide discharge limits will be a function of the implemented engineering controls (size of pipe, water flow rate at end of pipe, flow rate of receiving body, etc.).

\*\*\* For comparison purposes, the drinking water standard (i.e., MCL) for Cs-137 is 200 pCi/L.

**Shanna Alexander, DABT | Toxicologist**

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